Amendments to the Specification

Please replace the paragraph beginning at page 45, line 17, with the following rewritten paragraph:

The main station 10 converts the electrical signal type wireless LAN signal, which has been output from the APs 91a to 91e, to an optical signal type wireless LAN signal (hereinafter, the optical signal type wireless LAN signal is referred to as an optical signal). The main station 10 also converts an optical signal which is output from the sub-stations 20a and 20b, to an electrical signal type wireless LAN signal. The sub-stations 20a and 20b communicate with the terminals C and D via a radio wave. More specifically, the sub-stations 20a and 20b convert an optical signal which is output from the main station 10, to an electrical signal type wireless LAN signal, and transmits the electrical signal type wireless LAN signal in the form of a wireless electrical signal to the terminals C and D. The sub-stations 20a and 20b also receive and convert a wireless electrical signal type wireless LAN signal which is transmitted from the terminals C and D, to an electrical signal type wireless LAN signal and further convert the electrical signal type wireless LAN signal to an optical signal, which is in turn transmitted to the main station 10. The terminals C and D are a computer or PDA which has a wireless LAN interface.

Please replace the paragraph beginning at page 54, line 24, with the following rewritten paragraph:

Note that, in order to enable the user to easily change a frequency used in each AP 91, the transmitted signal combining section 101 detects which port receives what signal. When the frequency has been changed, the transmitted signal combining section 101 informs the received signal processing section ~~110~~ 111 of the change. In response to this, the received signal processing section ~~110 is~~ 111 changes the ports to which it outputs signals. For example, when a frequency used by an AP 91 connecting to a first port for an input signal and a first port for an output signal has been changed, the transmitted signal combining section 101 detects the change

and informs the received signal processing section 111 of the change. The received signal processing section 111 outputs a signal having a desired frequency, among the signals from the main station optical signal receiving section 112, to the first port for an output signal. Therefore, the AP can perform normal communication even when the frequency used is changed. Needless to say, when a frequency has been changed as described above, the user may change manually settings of the received signal processing section 111.

Please replace the paragraph beginning at page 68, line 11, with the following rewritten paragraph:

Next, the case where a radio wave type wireless LAN signal is input from the main station 10 to the sub-station 20 of FIG. 5 will be described. The signal transmitting/receiving antenna section 2051 receives a radio wave type wireless LAN signal in the 2.4-GHz frequency band, while the signal transmitting/receiving antenna section 2052 receives a radio wave type wireless LAN signal in the 5.2-GHz frequency band. The signal transmitting/receiving antenna sections 2051 and 2052 output the received signals to the signal transmission/reception separating sections 2041 and 2042. Next, the signal transmission/reception separating sections 2041 and 2042 output the obtained signals to the wireless signal receiving section 2120. The subsequent operations of the wireless signal receiving section 2120 and the sub-station optical signal transmitting section 211 are similar to those of the sub-station 20 of FIG. 3 and will not be explained. Thus, a radio wave type wireless LAN signal received by the sub-station 20 is transmitted to the main station 10.

Please replace the paragraph beginning at page 71, line 12, with the following rewritten paragraph:

As described above, the sub-station 20 is provided with a crosstalk canceling function, thereby reducing crosstalk from the signal transmission system to the signal reception system. Generally, crosstalk to the signal reception system due to noise occurring in a light receiving

system of the sub-station optical signal receiving section 201 often reaches a level which is not negligible compared to a received wireless signal ~~60~~. However, it is difficult to remove the noise using a filter or the like. Therefore, it is particularly effective to cancel crosstalk as in this configuration example.

Please replace the paragraph beginning at page 86, line 18, with the following rewritten paragraph:

The transmitted signal processing section 121 outputs a signal output from each AP 91 to both or one of the main station optical signal transmitting sections 102a and 102b in accordance with a setting in the setting section 142. Hereinafter, a configuration of the transmitted signal processing section ~~100~~ 121 will be described with reference to FIG. 14(a). FIG. 14(a) is a diagram showing an exemplary configuration of the transmitted signal processing section ~~100~~ 121.

Please replace the paragraph beginning at page 88, line 3, with the following rewritten paragraph:

The setting section 142 designates which electrical signal type wireless LAN signal is to be output to each of the main station optical signal transmitting sections 102a to 102c, with respect to the connectors 1212a to ~~1212d~~ 1212c, in accordance with the user's input in the input section 141. More specifically, the setting section 142 transmits a control signal to each of the connectors 1212a to 1212c based on an input from the user. Each of the connectors 1212a to 1212c, which receives the control signal, turns each switch ON or OFF in accordance with the control signal.

Please replace the paragraph beginning at page 89, line 7, with the following rewritten paragraph:

Electrical signal type wireless LAN signals having frequencies of f1, f2, f3 and f4 are input to the respective splitting sections 1211a to ~~1211c~~ 1211d from the APs 91a to 91d. Next, each of the splitting sections 1211a to ~~1211c~~ 1211d splits the obtained electrical signal type wireless LAN signal and outputs the resultant signal to each of the connectors 1212a to 1212c. As a result, each of the connectors 1212a to 1212c obtains all of the electrical signal type wireless LAN signals having frequencies of f1, f2, f3 and f4.

Please replace the paragraph beginning at page 90, line 13, with the following rewritten paragraph:

Note that the operation of each sub-station 20 and the operation of each of the main station optical signal receiving sections ~~112a to 112c~~ 102a to 102c and the received signal processing section 111 are similar to those of Embodiment 1 and will not be explained.

Please replace the paragraph beginning at page 96, line 1, with the following rewritten paragraph:

The AP 91a converts the obtained Ethernet(R) signal to an electrical signal type wireless LAN signal, which is in turn output to the main station 10. In response to this, the coupler group 1251 of the main station 10 obtains the electrical signal type wireless LAN signal.

Please replace the paragraph beginning at page 97, line 12, with the following rewritten paragraph:

Next, the case where an electrical signal type wireless LAN signal transmitted from a terminal is transmitted to an external network will be described. Here, as an example, it is assumed that an electrical signal type wireless LAN signal is output from a terminal present in a communication area of the sub-station 20a.

Please replace the paragraph beginning at page 98, line 19, with the following rewritten paragraph:

Here, the switch ~~section~~ group 1252 is turned ON/OFF based on a setting of the setting section 142. Note that, here, for the sake of brevity, as described above, the first and fifth switch sections (as counted from the top) are assumed to be turned ON. Therefore, only the first and fifth switch sections (as counted from the top) of the switch group ~~1251~~ 1252 output the signal transmitted from the sub-station 20a.

Please replace the paragraph beginning at page 100, line 13, with the following rewritten paragraph:

The main station optical signal transmitting sections 800a to 800e are connected to the respective corresponding APs 91a to 91e, and convert electrical signal type wireless LAN signals output from the respective APs 91a to 91e to optical signals. The optical transmitted signal processing section 805 has a configuration shown in FIG. 16, and outputs the optical signal output from each of the main station optical signal transmitting sections 800a to ~~800d~~ 800e to both or one of the sub-station 20a and the sub-station 20b in accordance with a setting of the setting section 142. Hereinafter, a configuration of the ~~transmitted signal processing section 100~~ optical transmitted signal processing section 805 will be described with reference to FIG. 16.

Please replace the paragraph beginning at page 100, line 24, with the following rewritten paragraph:

The optical transmitted signal processing section 805 comprises light splitting sections 810a to 810d, optical connectors 815a to 815c, and light combining sections 820a to 820c. The light splitting sections 810a to 810d split optical signals output from the main station optical signal transmitting sections ~~a to d~~ 800a to 800d into three, respectively. The optical connectors 815a to 815c connect and disconnect the output optical signal. The light combining sections 820a to 820c combine and frequency-division-multiplex input optical signals. Frequency spectra

shown in FIG. 16 are frequency spectra of signals output from the APs 91a to 91d and modulated signal frequency spectra of signals output from the light combining sections 820a to 820c. Note that center frequencies of input signals from the four APs 91a to 91d are f1 to f4, respectively.

Please replace the paragraph beginning at page 105, line 21, with the following rewritten paragraph:

As described above, according to the wireless LAN system of Embodiment 3, an effect similar to that of the wireless communication system of Embodiment 1 is obtained, and further, the main station 30 can also serve as a sub-station. Here, a wireless LAN service, which is directed to an antenna of a wireless LAN AP for an apartment building, has been commercialized. In this case, if a single AP can cover the whole apartment building, no problem arises. However, a plurality of APs may be required due to the presence of an obstacle. Therefore, the APs need to be installed at respective locations (e.g., a utility pole). Further, the APs need to be connected via a media converter or the like to a center station or a switch. In contrast to this, in the wireless communication system of Embodiment 3, a main station is installed at a single location, from which wireless LAN services are provided, and a sub-station is installed for a blind area. If the main station and the sub-station are connected via an optical fiber, the entire configuration of the wireless communication system is simple.

Please replace the paragraph beginning at page 109, line 13, with the following rewritten paragraph:

The antenna sections 150a and 150b receive and frequency-multiplex all radio waves having a plurality of frequencies transmitted from the APs 93a to 93e, and output the resultant signals to the wireless signal transmitting/receiving sections 151a and 151b connected thereto. The antenna sections 150a and 150b also convert electrical signal type wireless LAN signals output from the wireless signal transmitting/receiving sections 151a and 151b to radio waves having a plurality of frequencies, which are in turn transmitted to the APs 93a to 93e. The

wireless signal transmitting/receiving sections 151a and 151b amplify the signals output from the antenna sections 150a and 150b and output the resultant signals to the signal transmission/reception separating sections 152a and 152b connected thereto. The wireless signal transmitting/receiving sections 151a and 151b also amplify signals output from the signal transmission/reception separating sections 152a and 152b and output the resultant signals to the antenna sections 150.

Please replace the paragraph beginning at page 110, line 14, with the following rewritten paragraph:

The main station optical signal transmitting section 153a converts the frequency-multiplexed electrical signal type wireless LAN signal output from the signal transmission/reception separating section 152a connected thereto to an optical signal. The main station optical signal transmitting section 153a also transmits the optical signal via the optical fiber transmission path 50a to the sub-station 20a. Similarly, the main station optical signal transmitting section ~~152b~~ 153b converts the frequency-multiplexed electrical signal type wireless LAN signal output from the signal transmission/reception separating section ~~152a~~ 152b connected thereto to an optical signal. The main station optical signal transmitting section 153b also transmits the optical signal via the optical fiber transmission path 50b to the sub-station 20b.

Please replace the paragraph beginning at page 118, line 5, with the following rewritten paragraph:

Hereinafter, a wireless communication system according to Embodiment ~~2~~ 5 of the present invention will be described with reference to the drawings. The wireless communication system of Embodiment 5 is a combination of the wireless communication system of Embodiment 2 and the wireless communication system of Embodiment 4. Specifically, in the wireless communication system of Embodiment 5, an AP and a main station communicate with each other using a radio wave, and further, the main station selectively outputs a wireless LAN signal

output from each AP to a sub-station in each area. Note that an entire configuration of the wireless communication system of Embodiment 5 is similar to that of Embodiment 4, and therefore, FIG. 21 is referenced.

Please replace the paragraph beginning at page 120, line 2, with the following rewritten paragraph:

The signal selecting section 155a comprises a splitting section 1500a, bandpass filters 1501a to 1501e, a connector 1502a, and a combining section 1503a. The signal selecting section 155a outputs a portion of input wireless LAN signals having frequencies of f1 to f5 to a main station optical signal transmitting section ~~153~~ 153a in accordance with a setting of the setting section 156.

Please replace the paragraph beginning at page 128, line 13, with the following rewritten paragraph:

The antenna control section 251 controls directions of antennas included in the directional antenna ~~control~~ sections 250a and 250b in accordance with the user's input to enable communication with the desired APs 93a to 93e. The input section 252 is an input means for specifying which of the APs 93a to 93e is communicated with the directional antenna sections 250a and 250b.

Please replace the paragraph beginning at page 128, line 19, with the following rewritten paragraph:

Hereinafter, an operation of the thus-constructed main station 35 of this configuration example will be described. Note that operations of the SW 70, the APs 93a to 93e, the sub-stations 20a and 20b, and the terminals C and ~~B~~ D are similar to those of Embodiment 5, and therefore, only an operation of the main station 35 of FIG. 25 will be described.

Please replace the paragraph beginning at page 131, line 17, with the following rewritten paragraph:

The antenna control circuits 260a and 260b control a direction of each antenna included in the directional antenna ~~control~~ sections 250a and 250b in accordance with a control of the channel selection control section 261 to enable communication with the desired APs 93a to 93e. The channel selection control section 261 has area information shown in FIG. 27. The input section 262 is an input means for specifying which of the APs 93a to 93e is communicated with the directional antenna sections 250a and 250b.

Please replace the paragraph beginning at page 133, line 19, with the following rewritten paragraph:

In response to this, the main station optical signal receiving section 154a receives the request (step S11). The request is converted from an optical signal to an electrical signal type wireless LAN signal, which is in turn output to the signal transmission/reception separating section 152 and the channel selection control section 261.

Please replace the paragraph beginning at page 133, line 25, with the following rewritten paragraph:

The channel selection control section 261 transmits area information in response to the obtained request (step S12). Specifically, main station optical signal transmitting section ~~153~~ 153a converts the area information to an optical signal, which is in turn output to the sub-station 20a. Thereafter, the area information reaches via the optical fiber transmission line 50a and the sub-station 20a to the terminal E. Thus, the terminal E receives the area information (step S2).

Please replace the paragraph beginning at page 138, line 4, with the following rewritten paragraph:

The wireless signal optical transmission center apparatus comprises AP sections 92a to 92k and a main station function section 40. The AP sections 92a to 92k have a function similar to that of the sub-station 20 of Embodiments 1 to 3 and the above-described configuration examples thereof. The main station function section 40 has a function similar to that of the main station 10 and the AP ~~90~~ 91 of Embodiments 1 to 3 and the above-described configuration examples thereof. Therefore, the detailed configuration and operation of these elements will not be described.

Please replace the paragraph beginning at page 153, line 22, with the following rewritten paragraph:

The sub-station signal receiving section 201 comprises an optical signal receiving section 550, a local oscillator 555, a mixer 560, and a bandpass filter 565. The optical signal receiving section 550 converts an optical signal, which is a modulated IF signal, to an electrical signal type wireless LAN signal which is an IF signal. The local oscillator 555 is an apparatus for generating a local oscillation signal (frequency: fi) for converting an electrical signal type wireless LAN signal which is an IF signal, to an electrical signal type wireless LAN signal which is an RF signal. The mixer 560 mixes an electrical signal type wireless LAN signal which is an IF signal, with the signal generated by the local oscillator 555. The bandpass filter ~~515~~ 565 extracts an RF signal having a desired frequency from the frequency-converted signal.

Please replace the paragraph beginning at page 157, line 6, with the following rewritten paragraph:

Note that, here, the main station optical signal transmitting section 102 of the main station 10 of FIG. 2 and the sub-station optical signal receiving section ~~550~~ 201 of the sub-station 20 of FIG. 3 have been described. However, the application of the main station optical signal transmitting section 102 of FIG. 32 and the sub-station optical signal receiving section 201 of FIG. 33 is not limited to this. More specifically, the main station optical signal transmitting

section 102 of FIG. 32 and the sub-station optical signal receiving section 201 of FIG. 33 can be applied to all of the main stations 10 and the sub-stations 20 used in Embodiments 1 to 3.

Please replace the paragraph beginning at page 167, line 9, with the following rewritten paragraph:

Hereinafter, an operation of the main station 10 will be described. Signals from the APs 91a to 91e are transferred via the circulatory ~~139a to 139e~~ 700a to 700e to the transmitted signal combining section 101. The subsequent processes of the transmitted signal combining section 101, the main station optical signal transmitting section 102, and the light splitting section 103 are similar to those of Embodiment 1 and will not be explained.

Please replace the paragraph beginning at page 167, line 16, with the following rewritten paragraph:

The light combining section 113, the main station optical signal receiving section 112, and the received signal processing section 111 perform processes similar to those of Embodiment 1. Thereafter, the received signal processing section 111 outputs an electrical signal type wireless LAN signal. In response to this, the circulatory ~~139a to 139e~~ 700a to 700e output the electrical signal type wireless LAN signal to the APs 91a to 91e connected thereto. The subsequent processes of the APs 91a to 91e are similar to those of Embodiment 1 and will not be explained.